Remarks

Claims 1-3, 12-13, 21-23, 37-38, 41-45, 48-52, 58, 61, 64, and 142-146 are pending. Claims 1, 13, and 22 have been amended to remove the word "ivermectin" in accordance with the Restriction Requirement. Claims 37-38, 41-45, 48-52, 58, 61, and 64 are withdrawn.

Claim Rejections – 35 USC § 103

Claims 1-3, 12-13, 21-23, and 142-146 are rejected under 35 U.S.C. 103(a) for allegedly being unpatentable over the combined teachings of Taylor et al. and Schwiebert et al. in view of CAPLUS abstract 2001:30580 (herein referred to as Sperlagh et al.). Specifically, the Office Action states that Taylor et al. discloses that P2X puringeric receptor channels bind ATP and mediate Ca^{2+} influx and signals that stimulate secretory Cl^- transport across epithelia. The Office Action goes on to state that the P2X receptors can be targeted to treat cystic fibrosis.

Neither Taylor et al. nor Schwiebert et al. teach or suggest that a combination of Zn^{2+} and ATP; α,β-methylene-ATP; benzoyl-benzoyl-ATP; ATPγS; or AMPPNP, would result in a sustained elevation in cytosolic Ca^{2+} levels in the cell. In fact, neither Taylor et al. nor Schwiebert et al. even mention Zn^{2+}, much less that there is a sustained elevation in cytosolic Ca^{2+} levels in the cell when contacted with this combination. In fact, Schwiebert et al. explicitly states that P2X receptors, upon binding their ATP ligand, may increase cytosolic Ca^{2+} levels *only transiently*. This is in stark contrast to the claims, which discloses that there is a sustained elevation in cytosolic Ca^{2+} levels in the cell. Therefore, not only do Taylor et al. and Schwiebert et al. not teach or suggest the claimed invention, they actually teach away from it.

This defect is not corrected by Sperlagh et al., which did not even discuss or measure cytosolic Ca^{2+} levels. Although they did measure the outflow of physiological effects in the presence of Zn^{2+} and ATP, they found the effect to be transitory in nature (Figure 1, paragraph bridging pages 1777 and 1778). Therefore, one of skill in the art would have believed that cytosolic Ca^{2+} would also have been transient in nature. Furthermore, Sperlagh et al. examines guinea pig heart, a very different tissue or cell model preparation that the nose, lung and airways.

The effects seen in the guinea pig heart would not necessarily have correlated to the effects seen on epithelial cells.

Attached hereto is a 1.132 Declaration signed by the inventor, Dr. Erik Schwiebert, attesting that no one in the art at the time of the invention would have thought that cytosolic Ca^{2+} would have been sustainable. As Dr. Schwiebert states in the Declaration, the mammalian cell is designed to fight to keep calcium levels low and all calcium agonists elicit transient calcium spikes. In the cited art, only transient rises in cell calcium were elicited, and this was with ATP alone. The combination of the two ligands, zinc and ATP, was what elicited marked and sustained increases in cell calcium, not heretofore observed.

Claims 1-3, 12-13, and 21-23 are also rejected under 35 U.S.C. 103(a) for allegedly being unpatentable over the combined teachings of Taylor et al. and Schwiebert et al. in view of Sperlagh et al., and Boucher, Jr. (US 6,926,911; hereinafter, Boucher) in view of Senior (Medline abstract 86146262) and Rubenstein et al. (US 2002/0115619).

Neither Boucher, Senior, or Rubenstein corrects the deficiencies found in Taylor, Schwiebert, and Sperlagh. Namely, none of these references teach or suggest that a combination of Zn^{2+} and ATP; α, β-methylene-ATP; benzoyl-benzoyl-ATP; ATPγS; or AMPPNP, would result in a sustained elevation in cytosolic Ca^{2+} levels in the cell.

Applicants therefore respectfully request withdrawal of this rejection.

Favorable consideration of claims 1-3, 12-13, 21-23, and 142-146 is earnestly solicited.

Pursuant to the above amendments and remarks, reconsideration and allowance of the pending application is believed to be warranted. The Examiner is invited and encouraged to directly contact the undersigned if such contact may enhance the efficient prosecution of this application to issue.

An EFS-Web Credit Card Payment, authorizing payment in the amount of $510.00, representing the fee for a small entity under 37 C.F.R. 1.17(a)(3), and a Request for Extension of Time are enclosed. This amount is believed to be correct; however, the Commissioner is hereby authorized to charge any additional fees which may be required, or credit any overpayment to Deposit Account No. 14-0629.

Respectfully submitted,

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CERTIFICATE OF ELECTRONIC TRANSMISSION UNDER 37 C.F.R. § 1.8			
I hereby certify that this correspondence, including any items indicated as attached or included, is being transmitted via electronic transmission via EFS-Web on the date indicated below.			
Name of Person Mailing	Janell T. Cleveland		
Signature	/Janell T. Cleveland/	Date	August 7, 2008